

CLAIMS

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1. An automatically operable safety shield system for use with a syringe, said safety shield system comprising:

10 an inner holder having proximal and distal portions and defining an enclosure into which said syringe may be inserted;

15 an outer shield having proximal and distal portions, mounted outwards from said inner holder and being axially movable relative to said inner holder between retracted and extended positions;

20 a spring positioned between a first detent on said inner holder and a second detent on said outer shield, and urging said outer shield to its extended position;

25 said inner holder having at least one first opening and said outer shield having at least one first stop member, said first stop member being engageable with said first opening when said outer shield is in said retracted position;

30 said inner holder having distal to said first opening at least one first indentation, said first stop member being engageable with said first indentation when said outer shield is in said extended position; and

35 a trigger positioned within said inner holder and axially movable relative to said inner holder such that it can contact said first stop member when it is engaged with said first opening and disengage said first stop member from said first opening, allowing said spring to move said outer shield to said extended position.

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2. An automatically operable safety shield system according to claim 1, said first and second detents being positioned, respectively, on said distal portions of said inner holder and outer shield.

3. An automatically operable safety shield system according to either one of claims 1 or 2, additionally comprising a syringe comprising a barrel, a needle, a piston and a plunger rod movable within said barrel, said plunger rod having a protrusion, said syringe being operationally coupled to said trigger such that movement of said plunger rod protrusion to contact said trigger causes disengagement of said first stop member from said first opening, allowing said spring to move said outer shield to said extended position.

4. An automatically operable safety shield system, comprising:

10 a syringe comprising a barrel, a needle, a piston and a plunger rod movable within said barrel, said plunger rod having a protrusion;

an inner holder having proximal and distal portions and defining an enclosure into which said syringe may be inserted;

15 an outer shield having proximal and distal portions, mounted outwards from said inner holder and being axially movable relative to said inner holder between retracted and extended positions;

a spring positioned between a first distal detent on said inner holder and a second distal detent on said outer shield, and urging said outer shield to said extended position;

20 said inner holder having at least one first opening and said outer shield having at least one first stop member, said first stop member being engageable with said first opening when said outer shield is in said retracted position;

25 said inner holder having distal to said first opening at least one first indentation, said first stop member being engageable with said first indentation when said outer shield is in said extended position; and said syringe being operationally coupled to said inner holder and outer shield such that axial movement of said plunger rod protrusion relative to said inner holder causes said plunger rod protrusion to

contact said first stop member when it is engaged with said first opening and disengage said first stop member from said first opening, allowing said spring to move said outer shield to said extended position.

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5. An automatically operable safety shield system according to either one of claims 3 or 4, said syringe being provided with a safety clip removably secured to the portion of said plunger rod exposed from said barrel such that movement of said plunger rod is prevented when said safety clip is secured to said plunger rod.

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6. An automatically operable safety shield system according to any one of the preceding claims, said outer shield and inner holder having, respectively, proximal and distal abutment surfaces in opposing relationship to one another, which can engage one another to prevent movement of said outer shield beyond its extended position.

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7. An automatically operable safety shield system according to any one of the preceding claims, said inner holder and outer shield being of a generally cylindrical shape and having a cross-section selected from the group consisting of circular and elliptical.

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8. An automatically operable safety shield system according to claim 7, said generally cylindrically shape being a tapered cylindrical shape.

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9. An automatically operable safety shield system according to any one of the preceding claims, at least one of said inner holder and outer shield having guide means for axial movement to prevent relative rotation of said inner holder and outer shield.

10. An automatically operable safety shield system according to claim 9, said inner holder having corresponding to said first stop member a groove along which said first stop member is slidable.

5 11. An automatically operable safety shield system according to either one of claims 9 or 10 when dependent on claim 6, said outer shield having corresponding to each of said distal abutment surfaces a groove along which said distal abutment surface is slidable.

10 12. An automatically operable safety shield system according to any one of the preceding claims, said inner holder having an inner holder detent comprising a radially inwardly extending distal flange having an upper abutment surface which is contacted by said syringe, preventing further distal movement of said syringe in said inner holder.

15 13. An automatically operable safety shield system according to any one of the preceding claims, said inner holder having syringe engagement means for engaging and retaining said syringe.

20 14. An automatically operable safety shield system according to any one of the preceding claims, said inner holder having at its proximal end at least one radially extending protrusion usable as a finger grip.

25 15. An automatically operable safety shield system according to claim 14, said at least one radially extending protrusion at said inner holder proximal end being a flange extending around the whole of the circumference of said inner holder.

16. An automatically operable safety shield system according to any one of the preceding claims, said outer shield not having at its proximal end any radially extending protrusions usable as a finger grip.

17. An automatically operable safety shield system according to any one of the preceding claims, said inner holder additionally comprising plunger rod retaining means which prevent backwards movement of said plunger rod when it is at least almost at its forwardmost position.

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18. An automatically operable safety shield system according to any one of the preceding claims, said first stop member extending first outwardly and then inwardly from said outer shield such that said first stop member, when engaged with said first opening, has the centre of its pivotal axis inwards of the point of engagement with said 10 first opening.

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